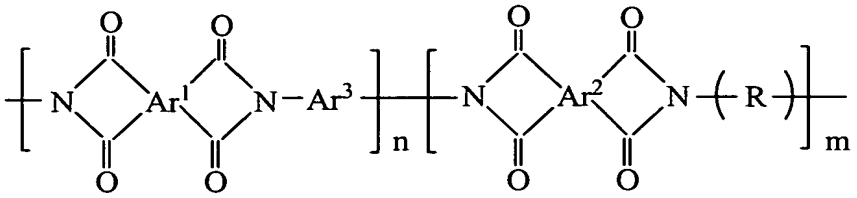
Listing of Claims:

1. (Original) A polyimide resin having a basic skeleton represented by the following general formula:

[Formula 1]

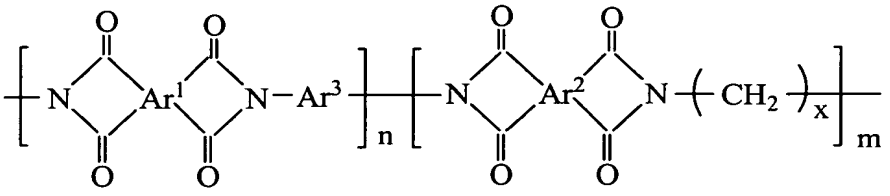


(1)

(in the formula (1), each of Ar^1 and Ar^2 is an aromatic ring having a carbon number of 6-20, which forms an imide ring of 5 or 6 atoms with an imide group adjoining thereto. In the aromatic ring, a part of carbon atoms may be substituted with S, N, O, SO_2 or CO, or a part of hydrogen atoms may be substituted with an aliphatic group, a halogen atom or a perfluoro aliphatic group. Ar^1 and Ar^2 may be same or different. R is at least one of linear alkylene group and branched alkylene group having a carbon number of 1-20. Ar^3 is an aromatic ring having a carbon number of 6-20 in which at least a part of hydrogen atoms is substituted with at least one of sulfoalkoxy group, carboalkoxy group and phosphoalkoxy group having a carbon number of 1-20 and a part of carbon atoms in these groups may be substituted with S, N, O, SO_2 or CO, or a part of hydrogen atoms may be substituted with an aliphatic group, a halogen atom or a perfluoro aliphatic group. n and m show a polymerization degree and are an integer of not less than 2.)

2. (Original) A polyimide resin according to claim 1, wherein the basic skeleton is represented by the following general formula (2):

[Formula 2]



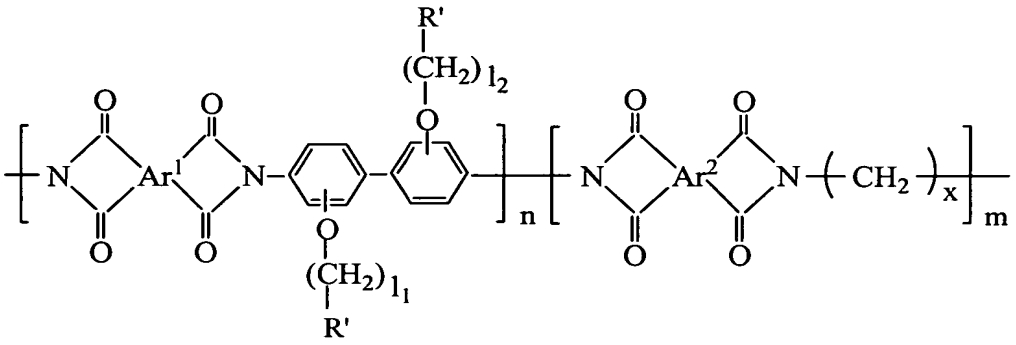
(2)

(in the formula (2), each of Ar^1 and Ar^2 is an aromatic ring having a carbon number of 6-20, which forms an imide ring of 5 or 6 atoms with an imide group adjoining thereto. In the aromatic ring, a part of carbon atoms may be substituted with S, N, O, SO_2 or CO, or a part of hydrogen atoms may be substituted with an aliphatic group, a halogen atom or a perfluoro aliphatic group. Ar^1 and Ar^2 may be same or different. x shows the carbon number of an alkylene group and is an integer of 1-20. Ar^3 is an aromatic ring having a

carbon number of 6-20 in which at least a part of hydrogen atoms is substituted with at least one of sulfoalkoxy group, carboalkoxy group and phosphoalkoxy group having a carbon number of 1-20 and a part of carbon atoms in these groups may be substituted with S, N, O, SO_2 or CO, or a part of hydrogen atoms may be substituted with an aliphatic group, a halogen atom or a perfluoro aliphatic group. n and m show a polymerization degree and are an integer of not less than 2.)

3. (Currently amended) A polyimide resin according to claim 2, wherein the basic skeleton is represented by the following general formula (3):

[Formula 3]



(3)

(in the formula (3), each of Ar^1 and Ar^2 is an aromatic ring having a carbon number of 6-20, which forms an imide ring of 5 or 6 atoms with an imide group adjoining thereto. In the aromatic ring, a part of carbon atoms may be substituted with S, N, O, SO_2 or CO, or a part of hydrogen atoms may be substituted with an aliphatic group, a halogen atom or a perfluoro aliphatic group. Ar^1 and Ar^2 may be same or different. x shows the carbon number of an alkylene group and is an integer of 1-20. Also, R' is at least one of a sulfonic acid group, a carboxylic acid group and phosphinic acid group, and each of l_1 and l_2 is a carbon number of at least one of a sulfoalkoxy group, a carboalkoxy group and a phosphoalkoxy group and is an integer of 1-20. l_1 and l_2 may be the same or different. n and m show a polymerization degree and are an integer of not less than 2. ~~In the formula (2), x shows a carbon number of an alkylene group and is an integer of 1-20.)~~

4. (Original) A polyimide resin according to claim 3, wherein the carbon number of at least one of a sulfoalkoxy group, a carboalkoxy group and a phosphoalkoxy group shown by l_1 and l_2 in the general formula (3) is 3 or 4.

5. (Currently amended) A polyimide resin according to any one of claims 1 to [[4]] 3, wherein n/m in the general formulae (1)-(3) is not more than 95/5 but not less than 30/70.

6. (Currently amended) A polyimide resin according to any one of claims 1 to [[5]] 3, wherein a part of at least one of the linear alkylene group and the branched alkylene group shown by R in the general formulae (1)-(3) includes a crosslinking structure.

7. (Currently amended) A polyimide resin according to any one of claims 1 to [[6]] 3, wherein an average molecular weight is not less than 5000.

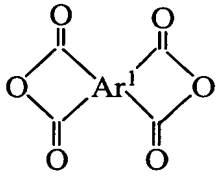
8. (Original) A method of producing a polyimide resin, characterized by comprising a dissolution step under heating a mixture of α, ω-alkylene diamine, a diamino compound represented by a general formula (4):

$H_2N\text{-}Ar^3\text{-}NH_2$ ····· (4)

(in the formula (4), Ar^3 is an aromatic ring having a carbon number of 6-20 in which at least a part of hydrogen atoms is substituted with at least one of a sulfoalkoxy group, a carboalkoxy group and a phosphoalkoxy group having a carbon number of 1-20 and a part of carbon atoms in these groups may be substituted with S, N, O, SO_2 or CO, or a part of hydrogen atoms may be substituted with an aliphatic group, a halogen atom or a perfluoro aliphatic group), a tertiary amine and an organic solvent; and

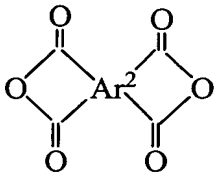
a polymerization step of adding the above mixture with an aromatic tetracarboxylic acid di-anhydride compound represented by a general formula (5) or (6):

[Formula 4]



(5)

[Formula 5]



(6)

(in the formulae (5) and (6), each of Ar^1 and Ar^2 is an aromatic ring having a carbon number of 6-20, which forms an imide ring of 5 or 6 atoms with an imide group adjoining thereto. In the aromatic ring, a part of carbon atoms may be substituted with S, N, O, SO_2 or CO, or a part of hydrogen atoms may be substituted with an aliphatic group, a halogen atom or a perfluoro aliphatic group. Ar^1 and Ar^2 may be same or different.) and heating in the presence of an organic acid at a temperature of at least 40°C to obtain a polyimide resin.

9. (Original) A method of producing a polyimide resin according to claim 8, which further comprises a modification step of heating the polyimide resin to at least 150°C to improve the physical properties of the polyimide resin after the polymerization step.

10. (Currently amended) A method of producing a polyimide resin according to claim 8 [[or 9]], wherein the mixing amounts of the diamino compound and the α, ω-alkylene diamine are not more than 95/5 but not less than 30/70 as a molar ratio.

11. (Currently amended) A method of producing a polyimide resin according to ~~any one of claims 8 to 10~~ claim 8, wherein the α, ω-alkylene diamine is an aliphatic diamine having an alkylene group with a carbon number of 1-20.

12. (Currently amended) A method of producing a polyimide resin according to ~~any one of claims 8 to 11~~ claim 8, wherein the diamino compound of the general formula (4) is at least one of 4,4'-diamino-2,2'-bis(sulfoalkoxy)biphenyl and 4,4'-diamino-3,3'-bis(sulfoalkoxy)biphenyl.

13. (Currently amended) A method of producing a polyimide resin according to ~~any one of claims 8 to 12~~ claim 8, wherein the tertiary amine is triethylamine.

14. (Currently amended) A method of producing a polyimide resin according to ~~any one of claims 8 to 13~~ claim 8, wherein the organic solvent is m-cresol.

15. (Currently amended) A method of producing a polyimide resin according to ~~any one of claims 8 to 14~~ claim 8, wherein the aromatic tetracarboxylic acid di-anhydride compound is naphthalene-1,8:4,5-tetracarboxylic acid di-anhydride.

16. (Currently amended) An electrolyte membrane characterized by including a poluyimide resin as claimed in any one of claims 1 to [[7]] 3.

17. (Currently amended) A catalyst layer characterized by including a polyimide resin as claimed in any one of claims 1 to [[7]] 3 and a given catalyst.

18. (Original) A membrane/electrode assembly characterized by joining an electrolyte membrane as claimed in claim 16 to a catalyst layer as claimed in claim 17.

19. (Original) A fuel cell characterized by including a membrane/electrode assembly as claimed in claim 18.

20. (Original) An electrolytic sensor characterized by including a membrane/electrode assembly as claimed in claim 18.

21. (Original) An electrochemical sensor characterized by including a membrane/electrode assembly as claimed in claim 18.